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Weijland, H.

1985

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Weijland, H. (1985). *Rural industry and its agricultural base*. (Serie Research Memoranda; No. 1985-24). Faculty of Economics and Business Administration, Vrije Universiteit Amsterdam.

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# **SERIE RESEARCHMEMORANDA**

RURAL INDUSTRY AND ITS AGRICULTURAL BASE

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Researchmemorandum 1985-24

Oct. '85



**VRIJE UNIVERSITEIT  
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## RURAL INDUSTRY AND ITS AGRICULTURAL BASE

An Inquiry into a New Field of Research in Development Economics

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### Abstract

Rural industry is, first and foremost, a reflection of its agricultural base and of farm household behaviour. It also depends heavily on locational advantages derived from isolation of its market and labour force. Some industries depend more on isolation and a relatively low local income level, so that they decline when the agricultural base develops and local income increases. Other industries, however, depend more on growing agricultural production and income, and improved infrastructural provisions, so that they expand with agricultural development. The complex relationships between rural industry, its agricultural base, and locational factors have not yet been sufficiently documented and analyzed. Consequently, current policies for rural industry have not been formulated consistently and cannot be expected to alleviate rural poverty.

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1. Introduction to a New Research Topic; Definition and Method
2. Global Statistics of Employment and Production
3. Organization, Technology, Productivity and Income
4. Distributional Impact
5. Interactions with Agriculture
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7. Development Policies; Conclusions

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# 1. Introduction to a New Research Topic; Definition and Method

Rural industry in less developed economies should be distinguished from urban industrial activities because of its special characteristics. Its most essential characteristic is its interrelatedness with agriculture and farm-household behaviour. This relationship is so strong that, from both the theoretical and the empirical point of view, rural industry should not be analysed in isolation. In most developing countries, the larger part of rural industry is not yet fully specialized, and represents only an element of a set of complementary and supplementary activities undertaken by rural households. This implies that not individual entrepreneurs but households should be regarded as the main decision-making units in rural industry.<sup>1)</sup>

Rural households generally include various categories of workers engaged in several activities because agriculture alone does not yield sufficient income and employment. Therefore family members work intermittently and simultaneously in all sorts of activities, ranging from agriculture to services. Some of these are undertaken only during slack periods in the agricultural working cycle, and are especially suited for adult male workers. Other activities are combined with regular chores such as housekeeping or cattle herding, and are more suited for married women. There are also light industrial activities that are undertaken mostly by children and aged people. Thus rural industry provides complementary employment for households with seasonal labour slacks, and also light, part-time employment for those who are unable to perform a full day's job in agriculture.

Another essential characteristic of rural industry is its location, which creates special advantages and disadvantages related to isolation. Rural industry is therefore strongly influenced by its agrarian base and location. These two factors and its household orientation define the special economic conditions of this industrial sector.

In the literature on off-farm employment, activities are usually defined as rural if they are located in rural areas. The latter are supposed to include only small municipalities with a population size and density below an arbitrarily chosen limit. Such an arbitrary demographic criterion, however, does not seem the most appropriate device for the identification of rural industry as a distinct

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1) This methodological issue is discussed e.g. by Schmitz(1982), pp. 431-32.

economic sector. In economic analysis, the rural-urban differentiation should be made according to economic criteria related to production and employment characteristics. For the purpose of an economic study of rural industry the most appropriate criterion for the identification of rural areas would be predominance of the primary activities agriculture, forestry and fishing. In rural areas these activities would be the single most important source of employment. Low population density and isolation of producers in rural areas could then be regarded as corollaries of the structure and organization of agrarian production rather than as independent identification criteria. Rural industry could be defined to include all industrial activities within the borders of rural areas, but it might be more meaningful to define it more directly as all those industrial enterprises that depend for the larger part of their work force or their markets on local agrarian households. According to this definition, rural industry would not include enterprises that are located in the countryside but that do neither employ agrarian workers nor produce for the local market. It may, however, include town enterprises that employ mainly commuting agrarian workers. This means, for example, that rural industry might include sugar mills located in towns but employing seasonal labour from rural areas; and that it might exclude large electricity plants and mines located in the countryside but employing hardly any local agrarian workers and producing mainly for large urban markets.

Given its dependence on agrarian labour and agrarian markets, rural industry closely follows the pattern of agrarian employment and production; it serves as an additional source of income for agrarian households, it processes agrarian products, and it produces farm inputs and consumer goods for agrarian households. But rural industry is not determined entirely by local agrarian conditions; it is also affected by wider infrastructural and economic factors which define its position vis-a-vis its competitors in the national economy and abroad. Rural-urban transport facilities affect the supply of labour and the market position of rural industry, and local public services affect its technology and profitability. The competitiveness of rural industry is also affected by wider national policies which may either favour or discriminate against rural industrialization. Study of the structure and prospects of rural industry therefore requires a complex analytical framework which interrelates economic processes on different levels of decision making and aggregation, namely

important processes for the analysis of rural industry are the allocation of labour by agrarian households; agrarian change and related changes in the labour and product market for rural industry; interregional specialization and integration of industry and corresponding restructuring of rural industry; and the impact of national policies that give direction to the industrialization process.

The aim of this paper is to describe the current function of rural industry and to analyse its prospects in the context of the above framework.

## 2. Global statistics of Employment and Production

Only since rural studies have shown the importance of non-farm employment, did economists begin to study rural industrial activities as a special subject. They then found how little is actually known about rural industry. According to the few available studies, most rural industrial activities are undertaken on a small scale as household industries. They include transformation activities that are conventionally classified under 'manufacturing', but also crafts such as brick laying and carpentering, traditional services such as tailoring and shoe repairing, and modern services such as photography and printing.

Rural household industries offer mostly supplementary employment to family members who are also engaged in farm work or household chores.<sup>1)</sup> Industrial surveys tend to overlook such supplementary activities. Population censuses, on the other hand, do cover the total work force, but they often register only the main occupation, which in rural areas is predominantly in agriculture, forestry, or fishing. It follows that both statistical sources give under-estimations of employment in rural industry as long as it has a supplementary function. In order to gain insight in the size and structure of rural industry, some use can be made of detailed micro studies of geographers, sociologists and anthropologists, but only few of their studies give the exact information needed for economic analysis.

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1) See Allal & Chuta (1982) Ch.II, and Oshima (1984) for global data. Local studies such as offered by White (1976), Nibbering & Schrevel (1982), and Khan et al. (1980) give more details on the special nature of rural employment.



For economists, the data problem starts at the subsistence level. Industrial activities for household purposes have hardly ever been valued in terms of money. When industries are commercialized, they still tend to be overlooked as long as the corresponding earnings represent only supplementary income sources. Most industrial surveys exclude establishments with less than 5 or even less than 10 workers. Labour statistics may therefore show wide lacunae. Part of the statistical problem is due to the special characteristics of household industry. For outsiders this industry is already difficult to locate, but even when it is found, the problem is how to count its work force and the hours spent on the various activities. Farmers may not be co-operative when interviewed about their industrial activities. If farming has a higher status, or is subsidized so that one receives cheap credits as a farmer, producers will tend to cling to that occupational status even if, in terms of time spent and income earned, they should be reported as primarily active in industry. Male heads of households may also wish to conceal that their wives and children work in commercialized activities. If they do admit that fact, they obviously may not like to state the correct number of hours worked. As women usually perform many tasks per day, even a keen observer may find it difficult to quantify their daily work. Male working time is less difficult to estimate, but yet it poses many problems. Thus it can happen that successive surveys in the same area yield very different results.

Similar problems arise with the estimation of capital stock of household industry. According to most reports, household industry uses very little capital. Yet some reports give unexpectedly high amounts of capital per worker. The divergences are probably caused by the use of different concepts of capital, which may or may not include part of the cottage used as a working place, or the materials, tools and machines that are not exclusively used for industrial activities.<sup>1)</sup> It is also very difficult to get information on the incomes earned in each of the activities undertaken by the households.

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1) See Weijland (1982) pp. 108-109

Some of the statistical problems with rural industry have also been met in surveys of urban small enterprise. But the statistical problems are considerably more complex in a rural context where activities are seasonally integrated and materially interlinked, and undertaken simultaneously as well as intermittently.

In spite of the enormous statistical lacunae, it is possible to give a global picture of current employment in rural industry. It appears that rural industry has become an important source of income in many developing countries, and not just in the most densely populated areas. In the 19 countries for which data are available rural industry claims some 20 to 30 percent of total rural primary employment, and it might employ an additional 10 to 20 percent as a secondary occupation.<sup>1)</sup> Local figures may even be much higher; in Peru, for example, primary employment in rural industry in certain areas is higher than 40 percent. Rural industry might be the most important single source of non-farm income.<sup>2)</sup>

The importance of rural industry in a developing economy is also highlighted by the large share of rural employment in total manufacturing employment. In the least developed countries this share may be as high as 90 percent. In middle-income countries, where urban industry has already developed, the rural share falls below 50 percent, but the number of persons employed in rural industry might continue to grow. In exceptional cases rural industry can grow faster than urban industry. This happened in Taiwan in the period 1956-66, when rural manufacturing employment grew at 7.4 percent per annum, while its share in all manufacturing employment increased from 37 to 41 percent.<sup>3)</sup> Taiwan's pattern of industrialization represents a unique case of decentralization. Other industrializing economies show higher degrees of urban concentration. In South Korea, for example, rural manufacturing employment grew at 6.1 percent, but its share in all manufacturing employment fell from 41 to 21 percent in the period 1960-75.<sup>4)</sup>

Unfortunately, comparable statistics are not available for other developing countries.

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1) Allal & Chuta (1982) pp. 6-10

2) Oshima (1984) p. 31

3) Ho (1982) p.976, Table 1.

4. Ibidem.

The only statistical sources commonly available are population censuses and household income surveys, which yield estimates of total non-agricultural income in rural areas. According to population censuses, non-agricultural employment grows as fast as total employment in Asia and East Africa, whereas it seems to grow only sluggishly in the Middle East, North Africa, and Latin America.<sup>1)</sup> If rural industry is assumed to grow proportionately with other non-farm activities, high growth rates for rural industry would be derived in Asia and East Africa, and low growth rates in the other regions. These tentative estimates are more or less in line with the results of income surveys and village studies.

### 3. Organization, Technology, Productivity and Income

The working time rural households spend on industrial activities depends on many factors. Size of the farm, seasonal and daily fluctuations in farm work, mechanization, and all such factors that determine the pattern, the skill requirements, and the productivity of farm and non-farm work play a role. Obviously, the various opportunities to earn incomes are carefully considered, although a relatively strong stimulus might be needed to embark on a new, unknown and therefore risky enterprise. The division of labour in rural households varies per region and household. It depends, among others, on the type of agricultural work, the cultural background, the social status, and the family composition. Some general tendencies can be observed. Industrial activities are often undertaken only by women and children. In particular married women work in household industry. Most women work only part of the day in industry, and during the planting and harvest seasons they even may abandon industry altogether. The working pattern for rural women is often distinctly different from that of urban women. The latter are reported to work only little in traditional industry but much more in trade.<sup>2)</sup> Yet in some rural areas it is also observed that women prefer to shift from industry to trade.<sup>3)</sup> Male workers, on the other hand, tend to specialize in crafts such as metal working, carpentering and tailoring. Unskilled men often work as carriers.

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1) Anderson & Leiserson (1978), Ho (1982), and Oshima (1984)

2) Sethuraman (1981), p.190

3) Nibbering & Schrevel (1982), p.47; Anderson & Khambata (1981), p.94

Employment in traditional rural industry is typically of a part-time, seasonal and supplementary nature.<sup>1)</sup> It fills slack working hours of the healthy adult workers during the slack seasons in agriculture or during rainy days, and it employs young, aged and not so healthy persons who are not able to do heavy farm work. Male workers might give priority to farm work, but in hot climates this is done mainly in the morning hours, so that there is time left for non-farm activities for almost every worker.<sup>2)</sup> Women and children spend some hours a day on handicrafts or any other industrial activity after having finished their household chores. Housekeeping and child care force women into occupational multiplicity.<sup>3)</sup> Women are sometimes able to perform several jobs simultaneously: housekeeping with shop-keeping, and animal herding with knitting are well-known combinations. Thus almost all rural women are at least a few hours a day engaged in some handicraft or processing activity.

Rural industry is traditionally marked by lack of continuity and professionalism. Its labour and material inputs are mostly of an agrarian origin, and therefore not regularly available. This has consequences for the organization of work and the choice of technique. The typical rural household enterprise adds up to no more than 2 to 4 family workers, possibly including an apprentice.<sup>4)</sup> Wage labour is not much used,<sup>5)</sup> but, as finance is lacking, and own enterprises are risky, poor families may prefer wage work to their own enterprise. The poor enterprises use simple techniques; often some small tools and a little skill suffice. Richer families invest more in their enterprises<sup>6)</sup>, but as it would be irrational to spend much on equipment that is used only part of the year and the day, investments in rural industry are constrained by the seasonal character of the activities.<sup>7)</sup> For similar reasons, little money is spent on inputs. Materials such as straw, wood and clay may be taken from the land. Processing of the farm's own produce ranks among the most important rural industries. For such activities barriers to entry are low, competition hard, and selling prices low.<sup>8)</sup>

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1) Allal & Chuta (1982), Ch.I; Nibbering & Schrevel (1982), pp.80-84

2) White (1976), p.280

3) Ibidem

4) The apprentice system is common in Africa, not so much in Asia.

5) In Africa less than in Asia

6) Islam (1984); Nibbering & Schrevel (1982), p.52; Norcliffe (1983)

7) Oshima (1984)

8) Allal & Chuta (1982) pp.1 - 20

Within rural industry, however, there is great diversity, and earnings may be highly differentiated. Rural industry may include firms with more than 100 workers as well as many small household enterprises. Higher-rank employees and skilled artisans may earn much, while unskilled and irregular workers earn very little. Rural industry appears to be just as differentiated as its urban counterpart.<sup>1)</sup> The traditional part of rural industry is also highly

differentiated according to capital and skill requirements.<sup>2)</sup> But regardless of such differences, traditional enterprises remain almost inseparably integrated with agriculture, which is probably the main reason why they keep operating so long on a household base. Some economists have argued that this household orientation is the most important cause of the high birth rate in rural areas.<sup>3)</sup> Use of child labour from an early age is typical of light rural industries, and children therefore represent important assets for the poor households.<sup>4)</sup>

Due to its labour intensity and low capital efficiency, traditional industry has very low overall productivity. Correspondingly, earnings in household industry are very low. For example, in a Javanese village in the 1970s, women would have to weave mats for 20 hours a day to earn their daily portion of rice;<sup>5)</sup> brick carriers earned about 0.50 US\$ a day, and masons at the most double that pay.<sup>6)</sup> Such low earnings are not exceptional in poor, densely populated countries, where household industry is often associated with surplus labour. But rural surplus labour is not just a result of fast population growth, it may also result from agricultural changes that squeeze labour out of agriculture into local industrial activities for which returns are lower than for agricultural work.<sup>7)</sup> Traditionally, household industry was able to absorb at least part of such labour surpluses. But if the rural economy cannot generate sufficient demand for locally produced goods, and if no external market can be found, marginal productivity in such activities tend to zero. This seems to happen today in many densely populated rural areas.<sup>8)</sup>

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1) Sethuraman (1981); Ho (1982), p.975; Norcliffe (1983)

2) For South Asia: Islam (1984); for Indonesia: Nibbering & Schrevel (1982); for Kenya: Norcliffe (1983)

3) Staley & Morse (1965) pp.88-89

4) White (1976), p.285

5) Ibid.p.280

6) Nibbering & Schrevel (1982) pp.49-50

7) White (1976) p.281; Islam (1984)

8) Poot (1981), p.123; Apibunyopas (1980)

In sum, all available country statistics and village studies suggest that the greater part of rural industry is a reflection of labour surplus or labour squeeze in agriculture, caused by agrarian involution or unequal agrarian development. In section 5 the consequences of agrarian change for the supply of labour for rural industry will be further analysed. Here we only point to the existence of a labour surplus which has no employment opportunities but in local, badly paid activities. This results in a complex employment pattern for the rural poor, who spend at best only part of their working time on adequately productive jobs on their own small farms or in a small enterprise, while the remainder of their time must be spent in considerably less productive activities. It is therefore common that rural poor households are engaged in a variety of traditional as well as modern activities, while the individual household members also perform a variety of jobs. An analysis of rural industry and its employment should take account of the peculiar imperfections of the rural labour market, caused by seasonal fluctuations in farm work, and insufficient employment opportunities for most categories of workers in agriculture throughout the year. In the rural economy specific categories of labour are underemployed during certain periods of the year and certain hours of the day. Due to farm location, regular commuting of surplus labour may be infeasible. Migration to urban areas is not an attractive solution either, as this implies the loss of a secure supply of food and the abandoning of a home. Households may find it easier to let some of their members migrate, while, obviously, married women, children and old people would remain at the homestead. These dependent family members would try to find supplementary earnings at home, and start some household industry, so that they could work on the farm and in the household at the same time. This situation explains at least partly why traditional industry does not subside but grows, despite its low marginal productivity.

#### 4. Distributional Impact

Direct statistical information on the effects of rural industry on incomes is not available. In household income surveys the earnings from rural industry are usually added to the earnings from other non-farm activities such as transport, trade and services. As there is no reason to assume that

the distributional effect of rural industry differs from that of other non-farm activities, it is plausible that rural industry, like other non-farm activities, has an equalizing effect on rural income distribution. This is due to the fact that it can compensate for lack of landed property. The level of income from industry is less related to the size of the farm than farm income is; it can even be inversely related to farm size. Sometimes it depends more on some family characteristic such as size of the family or size of the female work force, or some traditional skill.<sup>1)</sup>

The distributional effect of industrial income depends on the rate of remuneration of industrial activities relative to agricultural earnings, and on the degree the poor can participate in industrial activities. In some East Asian countries rural industry and other non-farm activities offer so much employment to the small-farm families that their non-farm income has risen far above farm income. In Japan, for example, average income of small-farm families has reached the income level of large-farm families since its non-farm income component rose to 90 percent of family income. Non-farm income as a share of small-farm family income has risen to 70 percent in Taiwan, and to 46 percent in South Korea.<sup>2)</sup> In all three East Asian countries rural inequality seems directly related to non-farm income, as a higher non-farm income share for the small-farm families corresponds with a lower inequality index: the rural Gini coefficient for Japan is 0.25, for Taiwan 0.29, and for South Korea 0.39.<sup>3)</sup> However, the fact that small-farm families and landless families seem to benefit increasingly from the growth of rural industry does not imply that the large-farm families do not benefit from it. In Japan, the average income from non-farm sources for large-farm families is only about half of that for small-farm families, but in Taiwan and South Korea it is about as high, and in other regions it may be much higher. Some economists believe that the East Asian situation is exceptional, and that it is more common that large-farm families draw higher incomes from non-farm enterprises than small-farm families do. According to village studies in South Asia, large farmers may run very profitable non-farm enterprises and earn substantial incomes from the renting out of manufacturing and transport equipment to poorer workers.<sup>4)</sup>

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1) Oshima (1984) pp. 12, 31.

2) Ibid. pp. 37-39 ; figures refer to 1980

3) Ibid. p.40

4) Nibbering & Schrevel (1982), pp.53-54, Islam (1984)

It is plausible that the distributional impact of non-farm activities depends mainly on the distribution of wealth and skills. The higher the concentration of land and the less egalitarian the rural society, the more rural elites might be able and willing to leave their farm work to hired labourers or share croppers, in order to start some profitable non-farm enterprise. The landless poor households then would not be able to set up competitive enterprises, and therefore prefer to hire out their labour rather than to start some primitive household enterprise on their own account. In such cases employment surveys show relatively high shares of wage-labour for the members of poor households. It appears that such an employment pattern emerges in South Asia. According to a comprehensive employment study, the following tendencies are observed in a number of villages in this region.<sup>1)</sup>

- Non-farm employment is inversely related to farm size. In certain areas most of the landless are employed only in the non-farm sector. On average, the landless depend for more than 70% of their work force on non-farm employment, whereas large farm families allocate some 10 to 70% of their labour to non-farm activities.
- Wage work is also inversely related to farm size. The poorer families tend to prefer wage work to self employment because traditional household enterprise pays less than wage labour does.
- Wages in non-farm enterprise are, on average, about the same as agricultural wages, but more differentiated. Wages for unskilled labour are some 50% lower than farm labour wages, whereas wages for skilled craftsmen are twice as high.

These findings suggest that employment opportunities in rural industry and other non-farm enterprise differ substantially per country and region, and that they are most favourable in egalitarian societies with rapid agricultural growth. Where land is concentrated, and agriculture grows only sluggishly, the poor workers have the least opportunities to become engaged in some profitable non-farm enterprise. Where land is concentrated but agriculture grows rapidly, the large farmers are outcompeting the poor in setting up non-farm enterprises. Only in egalitarian societies do the landless and poor farmers find opportunities to acquire some skills and receive financial assistance for non-farm activities, so that, when the economy grows, they are able to develop profitable enterprises or to find well-paid jobs. In non-egalitarian, stagnant rural economies, however, low productive work and low-wage jobs appear to grow disproportionally with population growth. Under the latter circumstances income distribution will not

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1) Islam (1984) pp.313-18



necessarily improve just by an increase in employment in rural industry, as this increase might be a symptom of distress adaptation rather than of rural development and alleviation of poverty. Rural income inequality decreases only if non-farm income increases faster than farm income, and if the small-farm families and the landless participate more than proportionately in this development. Some economists argue that such an equalizing process can take place only after agriculture has been transformed into a dynamic and egalitarian sector.<sup>1)</sup> This may be true, but, even when rural industry has no direct distributive impact, it can still benefit the poor indirectly through its products, which hopefully will be cheaper and more suited for the local market, so that the poor do profit from the development of rural industry, if not as producers, then at least as consumers.<sup>2)</sup>

##### 5. Interactions with Agriculture

The development of rural industry depends so strongly on agricultural development that its structure and growth cannot be meaningfully analysed without reference to its agricultural base. The two sectors share the same labour force, and their production activities have strong direct and indirect linkages. Agriculture provides raw materials for rural industry; and industry produces inputs and investment goods for agriculture, and consumer goods for the farm households. Furthermore, there are considerable transfers of income and savings between the two sectors. These are particularly important for the small-farm families who depend heavily on rural industry. In many regions some 50 percent of the farm families would not subsist without supplementary incomes from industry or some other non-farm activity.<sup>3)</sup> Such supplementary earnings may enable small farmers to invest in agriculture in order to raise their farm incomes, which, in turn, may lead again to industrial investments. The potential of rural industry to support

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1) Islam (1984) pp. 321-22

2) Norcliffe (1983) p.992

3) Druijven (1984) pp. 12-15; Nibbering & Schrevel (1982) pp.41-43

progress in agriculture is considered as one of the most important factors in harmonic rural development.<sup>1)</sup>

In spite of its development potential, rural industry is often found to be backward and stagnant. It appears that it can develop only if its agricultural base is structured in a way that is favourable for industrial growth. Agricultural change can reinforce or disconnect the linkages between the two sectors and alter the supply of labour for rural industry. Only certain agricultural changes favour rural industry, and then only if they are attended with favourable policies. The most favourable agricultural development widens the market for rural industry, improves its labour force, and raises industrial capital funds. Such a development can be brought about by a broad introduction of yield improving inputs, irrigation and multicropping systems, involving the majority of the rural population. Growth of agricultural production stimulates processing industries, and growth of farm income widens the markets for locally produced industrial goods. But agricultural innovations may make farming more labour intensive, so that certain industrial labour categories are drawn back into agriculture. This would not happen so easily in areas with a solid industrial tradition, where many industrial workers would perceive the advantage of further specialization in the industries with growing markets. If, however, urban industry can penetrate the rural market and is able to satisfy the increasing demand, it is possible that the labour-pull effect of agriculture dominates, so that the rural area de-industrializes. There are historical examples of both positive and negative reactions of rural industry to labour-intensive agricultural change. In Taiwan, the Punjab, and some regions in the Philippines, fast growth of rural industry has been reported as a reaction to egalitarian and rapid agricultural development.<sup>2)</sup> In Thailand, on the other hand, little rural industry has developed as a response to labour-intensive agricultural growth.<sup>3)</sup>

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1) Oshima (1983); Child & Kaneda (1975); Johnston & Kilby (1975)

2) Oshima (1983); Ho (1982); Child & Kaneda (1975); Gibb (1974)

3) World Bank (1983), pp. 7-8; Ch.VII

Mechanization in agriculture seems also to have ambiguous effects on rural industry. On the one hand, it can push labour out of agriculture into industry, while its demand for repair and maintenance of the new agricultural machinery reinforces this industrial bias. On the other hand, mechanization can reduce seasonal variations in agricultural work and therefore allow farm families to reduce their agricultural labour reserves and let some of their members migrate or commute to urban areas. As a result certain categories of labour that were part-time employed in rural industry might leave the countryside. Ideally, mechanization in agriculture should fit in with irrigation and multiple cropping in such a way that the linkages between agriculture and rural industry are strengthened instead of disconnected. Such a mutually supportive process took place in Japan, Taiwan, and some other regions in Asia.<sup>1)</sup> In many countries, however, mechanization in agriculture starts too soon and too fast, squeezing agricultural workers out of the sector while non-farm activities cannot yet absorb the extra supply of labour. A similar process might be started by other agricultural innovations that require special skills such as working with scythes or sickles, handling cattle, or operating complicated equipment. Unskilled men and women are then pushed out of agriculture, and the poorer rural families might then no longer be able to find sufficient employment in their villages, so that they would have to migrate. The reverse process sets in when agriculture becomes more dependent on unskilled labour, for example for the picking of fruit or cotton. This may have a negative effect on those rural industries that depend on the work of women and children, but it is also possible that because of additional seasonal employment in agriculture, the poorer families who depend mainly on industrial activities find it easier to survive in the countryside, and are now more able to invest in their small industrial enterprises.

Specialization in commercial crops represents another agricultural change that affects the labour force for rural industry. Specialization usually results in higher seasonal fluctuations in agricultural work and increased dependence on

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1) Oshima (1983)

seasonal labour which the local population cannot supply sufficiently.<sup>1)</sup> Crop specialization is therefore often attended with mechanization. In combination, these two processes almost certainly lead to a fall in agricultural employment and growing labour supply for non-farm activities, or to migration. This effect is aggravated by concentration of land. Specialized commercial crops are often more profitable if large quantities can be harvested, processed and traded. Commercialization therefore induces land concentration, crop specialization and mechanization. As a result, the entire rural economy and its social structure change. Due to the loss of agricultural employment, a number of rural labourers who worked both in agriculture and in industry would have to migrate, because they would not only lose their agricultural work but also part of their industrial market. Large scale commercialization in agriculture would lead to better communication with urban areas and to urbanization of consumer and producer demand. Moreover, as rural inequality would increase, the shift of rural demand towards urban goods would be reinforced. The net effect of these processes is most likely to be negative for rural industry; some modern industries would develop, but most of the traditional industries would disappear due to increased competition and migration.

In general, agricultural change may be associated with three distinct rural industrial processes: rural industrialization, de-industrialization, and industrial involution. Industrialization is stimulated by the agricultural developments that result in increasing demand for locally produced goods, whereas de-industrialization is stimulated by the agricultural developments that result in decreasing demand for locally produced goods and migration of the industrial work force to urban centres. Industrial involution reflects diminishing industrial productivity due to disproportionate growth of labour supply relative to the industrial market. It occurs mainly in densely populated rural areas where agricultural growth cannot keep up with population growth, and where demand for industrial goods falls relative to demand for food. If then no market outlet can be found for industrial goods, the terms of trade for industry will deteriorate, while industrial employment increases.<sup>2)</sup> In that case, growth of industrial

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1) Breman (1978-79)

2) The mechanisms of this process are discussed in more detail in Weijland (1982), pp. 117-124.

employment is merely a symptom of distress adaptation. A similar situation can be caused by a depression of the national economy, forcing unemployed migrants to return to their villages and take up some industrial activity. Industrial involution in the countryside is aggravated when both agriculture and urban industry stagnate. The other two processes, industrialization and de-industrialization, depend also on their wider economic context and are particularly sensitive to the development of urban industry and the improvement of rural transport and communication.

Although some empirical studies are available, much of what has been stated so far on the interactions between agriculture and rural industry is mainly conjecture. In fact, little information has been collected on the linkages between rural industry and its agricultural base. It is, for example, not clear to what extent rural industry is favoured or handicapped by its peculiar labour market imperfections and its isolation, and whether it will react positively to improvements in communication with urban areas and other rural centres

#### 7. Structure and Dynamics of Rural Industry

Within rural industry there is great diversity. One finds traditional and modern enterprise, small and large firms, locally and internationally oriented firms, and processing and assembling activities.

Although the scope for scale economies for rural enterprises is smaller than for their urban counterparts, some scale economies can be enjoyed, and therefore most modern rural industries are located in the larger villages and regional centres where they can benefit from larger markets and better infrastructural provisions.

The relative weights of the various industrial branches differ by region and locality. Some branches tend to cluster in specific places; villages may specialize in metal working, textile, construction, or some other industrial activity. In general, however, it appears that agro-processing industries rank among the most important activities, followed by industrial services. Employment in all broad categories of rural industry can grow rapidly when agriculture grows rapidly. In the first phase of rural development, basic consumer goods industries such as food, beverages and tobacco are most important, employing some 30% of the industrial work force. In later phases, more durable consumer goods gain

in importance; their employment share may rise to 40%.<sup>1)</sup> Fast growing branches are then textiles, footwear, and furniture. And finally, producer goods industries develop, producing chemicals, metal products, machinery, and other such products. The growth of the individual branches is less predictable, as it is not only determined by local resource availability and local demand conditions, but also by the industrial policy and industrial structure of specific countries. In Taiwan, for example, the growth rate of employment in producer goods industry was, on an average, 5% per annum higher than in South Korea, while the structure and growth rate of other industrial employment and production were practically the same in these countries.<sup>2)</sup>

Our scanty data base does not allow general conclusions, but it does suggest that rural manufacturing tends to modernize and shift to products with disproportionately increasing demand. Some branches may become export oriented, while others serve a special local clientele. The one thing one can conclude, therefore, is that in a favourable economic situation virtually all main branches of rural industry can grow rapidly. All depends on the general economic strategy, agricultural institutions, and specific measures to improve rural infrastructure.

The general observation that rural industry can grow rapidly under favourable circumstances does not imply that all kinds of industry can grow everywhere. Most rural industries depend heavily on specific locational advantages. Locational advantages depend on a number of factors. In general, a distinction can be made between advantages of material resource availability, market size, labour supply and skill endowment, and infrastructural provisions. Rural enterprises may have locational advantages as well as disadvantages. Common disadvantages are lack of infrastructural provisions such as electricity, water, and adequate means of transportation.

Rural industries can be classified according to their main locational advantages, derived from resource availability, market orientation, and labour supply. The industrial categories are:

- Resource-based industry, depending on locally produced agricultural and other primary materials. Products are tradable beyond the rural borders
- Low-wage industry, depending on cheap local labour, and producing light, labour-intensive, tradable goods. Its material inputs need not be of local origin

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1) Information derived from Gibb (1974), and Ho (1982), Table 1, footnote p.977

2) See Ho (1982), p.977

- Home-market industry, producing non-tradable goods for the local market. It includes mainly industrial services
- Other industry, having no particular locational advantage. Its products are tradable, and must compete with similar urban products; its technology is not particularly labour-intensive; its inputs are not predominantly of local origin.

Resource based industry appears often to be the most prosperous rural industry. A variety of local agricultural and non-agricultural materials can be profitably processed in local industry in order to make them less perishable and/or less bulky, so that they can be transported to distant markets. Examples of such industries are dairy production, sugar refinery, rice milling, fruit and vegetable preservation, tobacco drying and fermenting, and the production of timber, charcoal, bricks, and cement. These industries often employ seasonal labour, which lowers their labour cost relative to the labour cost of competing urban enterprises, in which case they have locational advantages of resources as well as cheap labour.

Low-wage industry in rural areas may be able to compete with urban competitors as long as it has an abundant supply of cheap rural labour, and as soon as it has sufficient access to high-quality inputs. The industry produces mostly light consumer goods. Examples are handicrafts such as weaving, knitting, embroidering, and the production of footwear and light household equipment. In contrast to resource-based industry, low-wage industry is foot-loose as its material inputs are often imported. Sufficient supply of such inputs may be crucial for the operating of this industry. Some of its branches are susceptible to scale economies, or affected by fashions and changes in tastes, so that they concentrate in urban centres or disappear altogether. Competition of larger urban and foreign enterprises threatens this rural industry continually, and its locational advantages tend to decrease when its rural base develops and its supply of cheap labour decreases. Nonetheless, it may be able to grow if it specializes in specific products or processes and if it operates on a medium scale or is organized by subcontractors.

Home-market industry produces for the local market only. Many home-market goods are by nature non-tradable because they depend on personal producer-client contacts. They include services from traditional crafts as well as from modern specializations. Examples are tailoring, furniture making, building activities, chemistry, printing, photography, and repair of modern equipment. Many of these activities combine industrial services with retail trade, so that it is difficult to distinguish between industry, trade or services.

The size of the home market of a rural industry depends on the local income level

and the number of households that can be directly served. A prosperous agricultural base, a high population density and a good transport system would therefore contribute substantially to the size of the home market and the development of home-market industry. Regional studies indicate that this industry grows rapidly as rural income increases; its income elasticity is well above unity. Its employment rate is also high; in some rural centres in the Philippines, for example, home-market oriented industrial specializations grew as fast as 11.5 % annually.<sup>1)</sup>

As this industry can be operated on a small scale and in a labour intensive way, it might employ a substantial part of the local labour force. However, some of its branches are particularly skill-intensive, so that their barriers of entry are too high for the poor unskilled workers.<sup>2)</sup> The skill-intensity of this industry might also require that it is concentrated in the larger rural centres. According to several studies this type of industry ranks among the most profitable activities.<sup>3)</sup>

The 'other industry' includes mostly producer goods industries. Part of agro-industry belongs to this category. Mixing of fertilizers and production of agricultural machinery and equipment are well-known examples. These activities tend to move to places where they can benefit from scale economies and access to skilled labour, credits, and technical information. When transport improves, such industries move away from their rural markets in order to be better able to compete with urban enterprises that offer more advanced products.

The production and employment prospects of rural industry can be derived from the prospects of the various industrial categories.

- Resource based industry grows with agricultural development and the availability of non-agricultural materials
- Home-market industry grows disproportionally with rural income, but concentrates in rural centres when the transport system improves
- Low-wage industry has growth potential when it is organized by subcontractors or when it can be organized on a medium to large scale.
- Other industry tends to concentrate in large rural centres or to move to urban areas.

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1) Gibb (1974), quoted in Anderson & Khambata (1981) pp. 119-200

2) Norcliffe (1983)

3) Ibidem



## 8. Development Policies; Conclusions

Only recently have policy makers in developing countries come to realize that rural industry has important functions for the national economy. Rural industry can contribute to economic growth and saving of foreign exchange because it makes better use of indigenous resources than does large-scale urban industry. Moreover, it stimulates agricultural growth by means of its production linkages and income transfers. And, most importantly, it offers employment to the rural poor, so that it alleviates poverty and checks rural-urban migration. Although these favourable effects of rural industry are now generally recognized, effective policies for the promotion of rural industry have not yet been formulated. Thus far governments have shown either negative attitudes or 'benign neglect'.<sup>1)</sup> Preference has been given to policies that encourage capital-intensive, large urban industries. Even the agro-industries and other rural processing industries that have been established in rural areas tend to be large and capital intensive.<sup>2)</sup> Conventional industrial policies therefore tended to raise international dependence, unemployment, and inequality. It is doubtful whether any industrial policy favoured rural industry. Even if governments tried to formulate policies in support of rural industry, they did so with little success, and where rural industry commenced to prosper, there appeared to be little relation to special industrial programmes.<sup>3)</sup> The growth of rural industry seems much more related to its agricultural base and wider economic environment than to special measures designed to favour industry only. It is therefore argued that the development of rural industry requires a reorientation of national economic strategies. Financial policy should allocate more funds to rural areas, and trade policy should improve the access to high quality inputs for small rural enterprises. One may not need to offer expensive extension services to the rural industries to make them more able to compete with urban industries; it may suffice to stop subsidizing large urban enterprises.

Obviously, special measures such as cheap credits and other extension services would encourage rural industry, but such services are costly, and have the additional problem that they tend to favour only the rich. Even if some services can be made to benefit the poor entrepreneurs, they might not be effective as long as they have no sound economic base. Broadly based agricultural development is a precondition for the development of rural industry. If agriculture stagnates, it is premature to design special programmes for rural industry. In that case it is more effective to start first a programme for a particular kind of agricultural development that can induce spontaneous growth of rural industry.

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1) Chuta & Sethuraman (1984) pp. 2-3

2) Ibidem

3) Oshima (1983)

But even after the necessary preconditions for rural industrialization have been created, it is still difficult, if not impossible, to encourage rural industry consistently and effectively, because it includes branches with conflicting interests. Some branches, for example, benefit from an improved transport network because it widens their markets, while others suffer from it because it facilitates competition of urban enterprises. Some branches benefit from rising agricultural production because it raises the demand for their products, while others suffer from it, because it puts an upward pressure on the wage level so that they become less competitive. Traditional home-market industries and low-wage industries might be adversely affected by policies that aim to improve the agricultural base and the infrastructural environment of rural industry. Policy makers ought to foresee which industries and which areas will be most seriously affected by changes in the economic environment, so that they might compensate for the adverse effects and stimulate alternative employment opportunities. But the problem is that no consensus has been reached about the characteristics of the non-viable industries, and little is known about the effects of agricultural change and environmental improvements on specific industrial branches. This uncertainty may at least partly explain the conservative attitudes of local authorities and financial institutions with respect to rural industry.

Due to the lack of insight in the factors that affect rural industry, it might be convenient to refrain from direct support to rural industry, and give more attention to the development of agriculture and rural infrastructure. This would mean however that no real assistance is offered to the activities that are most important for the rural poor. It should therefore be concluded that much rethinking and research has to be done for the formulation of an industrial policy that is both growth and distribution oriented. Research is needed on the inter-relationships between the various branches of rural industry on the one hand, and their agricultural base and infrastructural requirements on the other. Furthermore, the direct and indirect linkages between the various industries have to be studied, and finally, more insight is needed in the functions of specific industries for specific categories of households and workers.

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